

July 6, 2018

Mr. Brian Kelly
On-Scene Coordinator
U.S. Environmental Protection Agency Region 5
9311 Groh Road
Gross Ile, MI 48138-1697

**Subject: Removal Assessment Report (Revision 1) for the
Quincy Mining Company Mason – RS Site
EPA Contract No.: EP-S5-13-01
Technical Direction Document No.: S05-0001-1711-006
Document Tracking No.: 2441A**

Dear Mr. Kelly:

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) submits this revised Removal Assessment Report regarding the Quincy Mining Company Mason – RS Site based on comments received from the EPA OSC on July 5, 2018. This report summarizes sampling of building material and waste completed by START per the Sampling and Analysis Plan submitted on March 29, 2018. The initial removal assessment occurred on May 30, 2018, and a second mobilization (requested to collect additional samples) occurred on June 18, 2018. Further assessment activities may be required due to a flooding event that occurred on June 17, 2018 after the initial site assessment on May 30, 2018.

If you have any questions regarding this report, please contact me at (586) 524-0613.

Sincerely,



Lori Kozel
Tetra Tech Project Manager

Enclosure

cc: TDD File
Kevin Scott, Tetra Tech Program Manager

**REMOVAL ASSESSMENT REPORT
FOR
QUINCY MINING COMPANY MASON – RS SITE
MASON, HOUGHTON COUNTY, MICHIGAN**

Revision 1

U.S. Environmental Protection Agency
Emergency Response Branch
Region 5
9311 Groh Road
Gross Ile, Michigan 48138-1697

Submitted by

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Prepared by:



Lori Kozel
Project Manager

Approved by:



Kevin Scott
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1.0 INTRODUCTION

Under Superfund Technical Assessment and Response Team (START) Contract No. EP-S5-13-01, U.S. Environmental Protection Agency (USEPA) Region 5 tasked Tetra Tech, Inc. (Tetra Tech) to prepare a removal assessment report regarding the Quincy Mining Company Mason – RS Site (the site) in Mason, Houghton County, Michigan. The purpose of the removal assessment was to evaluate potential for threats to human health and/or the environment, and to assess potential need for a removal action.

Under Technical Direction Document (TDD) No. S05-0001-1711-006, Tetra Tech START performed the following activities during this assessment:

- Prepared a Sampling and Analysis Plan (SAP) (Tetra Tech 2018).
- Prepared a Site Health and Safety Plan.
- Completed written logbook documentation activities in accordance with Tetra Tech Standard Operating Procedure (SOP) No. 024, “Recording Notes in Field Logbooks” (Tetra Tech 2014).
- Collected samples of asbestos-containing building material (ACBM), residual processing material (RPM), and abandoned container waste in accordance with the site-specific SAP (Tetra Tech 2018). Screened RPM for lead using a hand-held X-ray fluorescence (XRF) analyzer
- impacted areas.
- Completed data validation.
- Compared analytical data to applicable screening levels.

Section 2.0 of this removal assessment report indicates the location of the site and summarizes its history. Section 3.0 describes the field investigation. Section 4.0 discusses screening levels and evaluates existing and START data. Section 5.0 presents conclusions. All sources cited in this report are listed after the text. Appendix A contains figures. Appendix B presents tables. Appendix C is a photographic documentation log and Appendix D contains logbook notes. Chain of custody records are included in Appendix E.

2.0 SITE BACKGROUND

This section describes the location of the site and summarizes its history.

2.1 SITE LOCATION

The site is in Mason, Houghton County, Michigan. The site covers an area of approximately 300 acres and includes more than five parcels, three of which have been found to host ACBM, RPM, and/or abandoned containers. The site includes the Quincy Reclamation Plant Area and the Quincy Stamp Mills Area (Appendix A, Figures 1 and 2). Access to the property, west of M-26, is unrestricted, and the property is frequented by trespassers. The site hosts the remains of a municipal dump and former industrial structures—a reclamation plant, boiler house, coal dock, stamp mills, and various others that supported operations.

2.2 SITE HISTORY

The Michigan Department of Environmental Quality (MDEQ) has conducted sampling activities at the site dating back to 2006, including the most recent 2017 sampling event. The 2017 sampling event involved collection of 27 samples of potential ACBM, 20 of which were found to contain friable asbestos. Intact and empty abandoned containers are scattered throughout the site, as well as RPM, one sample of which MDEQ determined to be a hazardous waste because the waste exhibited a toxicity characteristic leaching procedure (TCLP) lead level exceeding the Resource Conservation and Recovery Act (RCRA) standard of 5.0 milligrams per liter (mg/L).

Access to the site on the west side of Highway M-26 is not restricted, and because of this easy access to secluded areas of the site, trespassers including students, tourists, and other members of the general public are often present. Moreover, many student groups visit the area. On November 9, 2017, MDEQ requested USEPA assistance to address the ACBM, RPM, and abandoned containers at the site.

3.0 FIELD INVESTIGATION

This section summarizes the scope of work and describes sampling activities during the USEPA removal assessment at the site.

3.1 SCOPE OF WORK

Field work accorded with the site-specific START SAP (Tetra Tech 2018) and the contract Quality Assurance Project Plan (QAPP) (Tetra Tech 2016).

3.2 SAMPLING ACTIVITIES

This section describes sampling activities at the site on May 30 and June 18, 2018. START sampling locations are depicted on Figure 3 in Appendix A. Photographic documentation of some sampled materials is in Appendix C and logbook notes that were collected are in Appendix D.

3.2.1 Asbestos-Containing Building Material Sampling

START collected 24 bulk asbestos samples, including two duplicate samples, during the May and June 2018 sampling events, per the site-specific SAP (Tetra Tech 2018). Sample locations were selected by START personnel familiar with asbestos-related building materials, and were biased toward items that were previously identified as asbestos by MDEQ.

In accordance with USEPA Environmental Response Team (ERT) SOP No. 2013, “Bulk Sampling for Asbestos,” START prevented potential cross contamination of asbestos fibers by utilizing dedicated sampling equipment for each sample and by placing each sample into an individual, sealable, plastic bag.

Following collection of each sample, the sample bag was labeled with a unique sample identifier, date, and time of sampling. Sampling data (analyses to be conducted, sample collection times, and sampling dates) were recorded on laboratory chain-of-custody forms. The samples were submitted under a signed chain-of-custody form to EMSL Analytical, in Ann Arbor, Michigan, for analysis for asbestos content via polarized light microscopy (PLM), EPA Test Method 600/R-93/116

3.2.2 Residual Processing Material and Abandoned Container Waste Sampling

START collected 12 RPM/waste samples during the May 2018 sampling event, along with one duplicate sample, per the site-specific SAP (Tetra Tech 2018). Selections of sample locations were biased with intent to verify previous MDEQ findings where MDEQ had found soils containing leachable lead at concentrations exceeding the TCLP criterion or direct contact criterion for lead. START collected XRF readings for a few of the RPM/waste samples to assist in the determination of lab analysis.

START utilized a disposable (dedicated) scoop to collect RPM/waste material samples of material on the site surface. The samples were placed in laboratory-supplied, glass jars in accordance with Tetra Tech SOP No. 005-3, "Soil Sampling." A sample label indicating a unique sample identifier and date and time of sampling was attached to each jar following sample collection. Sampling data (analyses to occur, sample collection times, and sampling dates) were recorded on laboratory chain-of-custody forms. The samples were submitted under a signed chain-of-custody form to Tetra Tech's subcontracted laboratory (CT Laboratories in Baraboo, Wisconsin) for analyses for total metals, TCLP metals, TCLP volatile organic compounds (VOC), and polychlorinated biphenyl (PCB) Aroclor, and for measurements of pH and flashpoint. Not all samples underwent analyses for all parameters listed above, given that the analytical suite for each sample was based on previously acquired data and newly identified locations. Chain of Custody records are provided in Appendix E.

A START chemist conducted validation of laboratory analytical data from samples collected, and submitted results of the data validation under separate cover on July 02, 2018. Data was useable but some results were qualified as detailed in the report. The results may be used as qualified based on the findings of the validation effort.

4.0 SITE SCREENING LEVELS AND DATA EVALUATION

This section presents selected site screening levels and evaluates analytical data from samples collected by START.

4.1 SITE SCREENING LEVELS

The following is a summary of the specific regulatory criteria applied to the analytical results from samples of potential ACBM and RPM/waste collected by START.

Asbestos:

- National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 *Code of Federal Regulations* [CFR], Part 61, Subpart M) (USEPA 1984) Criteria of 1% asbestos.
- Part 201 of Michigan's Natural Resources and Environmental Protection Act (NREPA), being PA 451 of 1994, as amended. Particulate Soil Inhalation Criteria (PSIC) for Response Activity (MDEQ 2013) Criteria of 1% asbestos.

RPM/Waste:

- USEPA industrial direct contact removal management levels (RMLs) (USEPA 2018) of 800 milligrams per kilogram (mg/kg) for lead and 140,000 mg/kg for copper. USEPA RMLs were modified based on target cancer risk (TCR) of 10^{-4} and hazard quotient (HQ) of 3 for non-carcinogens.
- Part 201 of Michigan's NREPA, being PA 451 of 1994, as amended. Non-Residential Direct Contact Criteria (DCC) of 900 mg/kg for lead (MDEQ 2018).
- RCRA, Identification and Listing of Hazardous Waste Criteria (40 CFR, Part 261, Subpart C) of 5.0 mg/L for lead (USEPA 2012).

4.2 DATA EVALUATION

This section conveys results from samples collected by START during the removal assessment.

Potential Asbestos-Containing Building Material Samples

Analytical results from samples collected on May 30 and June 18, 2018, verified results from previous MDEQ sampling events. START collected 24 potential ACBM samples (including two duplicates), 20 of which were found to contain asbestos in amounts exceeding the NESHAP and MDEQ Particulate Soil Inhalation Criterion of 1%. The maximum amount was 85% chrysotile asbestos in sample QMRA-ACBM-07-053018. Results from the samples of potential ACBM, as well as comparisons to applicable criteria, are listed in Table 1 in Appendix B. Those results are also depicted on Figure 4 in Appendix A.

Residual Processing Material and Abandoned Container Waste Sampling

START collected 12 RPM/waste samples (including one duplicate) during the removal assessment. Four of the 12 samples (QMRA-RPM-02-053018, QMRA-RPM-08-053018, QMRA-RPM-09-053018, and QMRA-RPM-10-053018) exceeded USEPA's industrial RML for lead of 800 mg/kg, and one sample (QMRA-RPM-01-053018) exceeded USEPA's industrial RML for copper of 140,000 mg/kg. Four samples (QMRA-RPM-02-053018, QMRA-RPM-08-053018, QMRA-RPM-09-053018, and QMRA-RPM-10-053018) exceeded the MDEQ Non-residential DCC for lead of 900 mg/kg, and three samples (QMRA-RPM-02-053018, QMRA-RPM-08-053018, and QMRA-RPM-10-053018) exceeded the TCLP criterion for lead as a hazardous waste of 5.0 mg/L.

Results from the RPM/waste samples, as well as comparisons to applicable criteria, are listed in Table 2 in Appendix B. Those results are also depicted on Figure 5 Appendix A.

5.0 CONCLUSIONS

To assess potential for threats to human health and/or the environment during the removal assessment, START collected samples of building material and RPM/waste material, and compared resulting analytical data to applicable screening levels.

Analytical results indicate that the following chemical and physical hazards associated with the site remain at the site:

- Certain RPM/waste with leachable lead concentrations exceeding the TCLP limit, thus resulting in characterization of these wastes as hazardous
- Friable ACBM (greater than 1% asbestos), including materials across the site surface that have been and will continue to fall and blow around the site
- Potential for wind and water erosion, and deposition of contaminated soils and wastes that pose environmental risk
- RPM/waste with concentrations of copper and lead exceeding the USEPA RML for industrial soil
- RPM/waste with concentrations of lead exceeding the MDEQ non-residential DCC
- Possibly present abandoned containers within the waste
- Physical hazards associated with unsecured buildings ruins and wastes.

The site is split by the Michigan Department of Transportation (MDOT) Highway M-26 and includes a right of way (ROW) that includes a wide paved shoulder. Though partially fenced, the site is accessible to trespassers.

Damaged and friable ACBM and ACBM that could become friable pose potential risk to human health via the inhalation pathway. ACBM that poses increased potential for human exposure to asbestos also includes materials that have fallen and blown from the site and will continue to do so. TCLP testing identified wastes likely to leach concentrations of lead that may be harmful to human health and/or the environment.

Given potential for wind and water erosion, exposure of ecological receptors to site contamination via deposition of contaminated soils and wastes is also possible. Human receptors could be exposed to site contamination via inhalation of and direct contact with contaminated media including RPM/waste, ACBM, and possibly present abandoned containers.

Physical hazards associated with unsecured buildings and RPM/waste are present at the site. The presence of trespassers greatly increases the likelihood of human health and environmental impacts.

Summaries of analytical results exceeding selected screening criteria appear on Figures 4 and 5, in

Appendix A, and in Tables 1 and 2 in Appendix B.

Potential exposure could occur via each migration pathway, and pose imminent danger to human health and the environment. Conditions at the site may present a threat to public health or welfare, and/or the environment, and meet the criteria for a time-critical removal action as specified in the National Contingency Plan, as outlined in 40 CFR § 300.415(b)(2). These criteria include, but are not limited to, the following:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

Analytical data and background information, reviewed during development of this removal assessment report, documented multiple media contaminated with metals (lead and copper), asbestos, and leachable lead at the site. Exposure of these contaminants to adjacent land users and trespassers poses an actual or potential threat to human health, and presence of these contaminants threatens the environment.

Toxicological effects of lead, copper, and asbestos have been studied by the Agency for Toxic Substances and Disease Registry (ATSDR). The following toxicological information derives from ATSDR documents (and is referenced at the end of this report):

Lead – Effects of lead are the same whether it enters the body via breathing or swallowing. Lead can affect almost every organ and system in the body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure in adults can result in decreased performance in some tests that measure functions of the nervous system. Lead may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people, and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children, and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage (ATSDR 2007).

Copper – Absorption of small amounts of copper is essential for good health. However, high levels of copper can be harmful. Breathing high levels of copper can cause irritation of the nose and throat. Ingesting high levels of copper can cause nausea, vomiting, and diarrhea. Very high doses of copper can damage the liver and kidneys, and can even cause death (ATSDR 2004).

Asbestos – Asbestos is the name given to a group of six different fibrous minerals (amosite, chrysotile, crocidolite, and the fibrous varieties of tremolite, actinolite, and anthophyllite) that occur naturally in the environment. Asbestos minerals have separable long fibers that are strong

and flexible enough to be spun and woven, and are heat resistant. Given these characteristics, asbestos has been used for a wide range of manufactured goods, mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings.

Asbestos mainly affects the lungs and the membrane that surrounds the lungs. Breathing high levels of asbestos fibers for a long time may result in scar-like tissue in the lungs and in the pleural membrane (lining) that surrounds the lungs (ATSDR 2001).

Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release

Abandoned containers remain within waste piles. The containers are open, damaged, and corroded, and several contain waste materials with concentrations of copper and lead exceeding the USEPA RML for industrial soil of 800 mg/kg, the MDEQ Direct Contact Criteria of 900 mg/kg, and/or the hazardous waste criteria for lead of 5.0 mg/L. Abandoned containers pose a threat of release of contaminants that could affect adjacent land users, trespassers, and the environment.

Weather conditions that may induce migration or release of hazardous substances or pollutants or contaminants

The site is in an area of the Upper Peninsula of Michigan with long and snowy winters, with an annual average of 207 inches of snowfall including lake effect and an annual average of 31 inches of rainfall. Winter temperatures are normally below freezing, with an average of 100.9 days per year failing to reach above freezing. Weather conditions would cause further deterioration of abandoned containers and ACBM, erosion by wind and water, and deposition of contaminated soils and wastes.

Availability of other appropriate federal or state response mechanisms to respond to the release

MDEQ referred the site to USPA Region 5. Neither the site property owner nor the State of Michigan is known to have funding available to address the issues associated with the site. In a letter dated November 9, 2017, MDEQ requested assistance from the USEPA Emergency Response Branch to address risks posed by the site.

REFERENCES

- Agency for Toxic Substances & Disease Registry (ATSDR). 2001. Toxic Substances Portal. “ToxFAQs for Asbestos.” September. <https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=29&tid=4>
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- MDEQ. 2013. Part 201 of Michigan’s Natural Resources and Environmental Protection Act (NREPA), being PA 451 of 1994, as amended. Cleanup Criteria Requirements for Response Activity. December 30. http://www.michigan.gov/deq/0,4561,7-135-3311_4109-251790--,00.html
- MDEQ. 2018. Part 201 Cleanup Criteria Requirements for Response Activity. Non-residential soil criteria. https://www.michigan.gov/deq/0,4561,7-135-3311_4109-251790--,00.html
- Tetra Tech, Inc. (Tetra Tech). 2014. Recording Notes in Field Logbooks, Standard Operating Procedure (SOP) No. 024-2. November.
- Tetra Tech. 2016. Quality Assurance Project Plan (QAPP). Superfund Technical Assessment and Response Team (START IV), Revision 3, USEPA Region 5, Contract No. EP-S5-EP-01, June.
- Tetra Tech. 2018. Sampling and Analysis Plan (SAP) Revision 0. March.

APPENDIX A

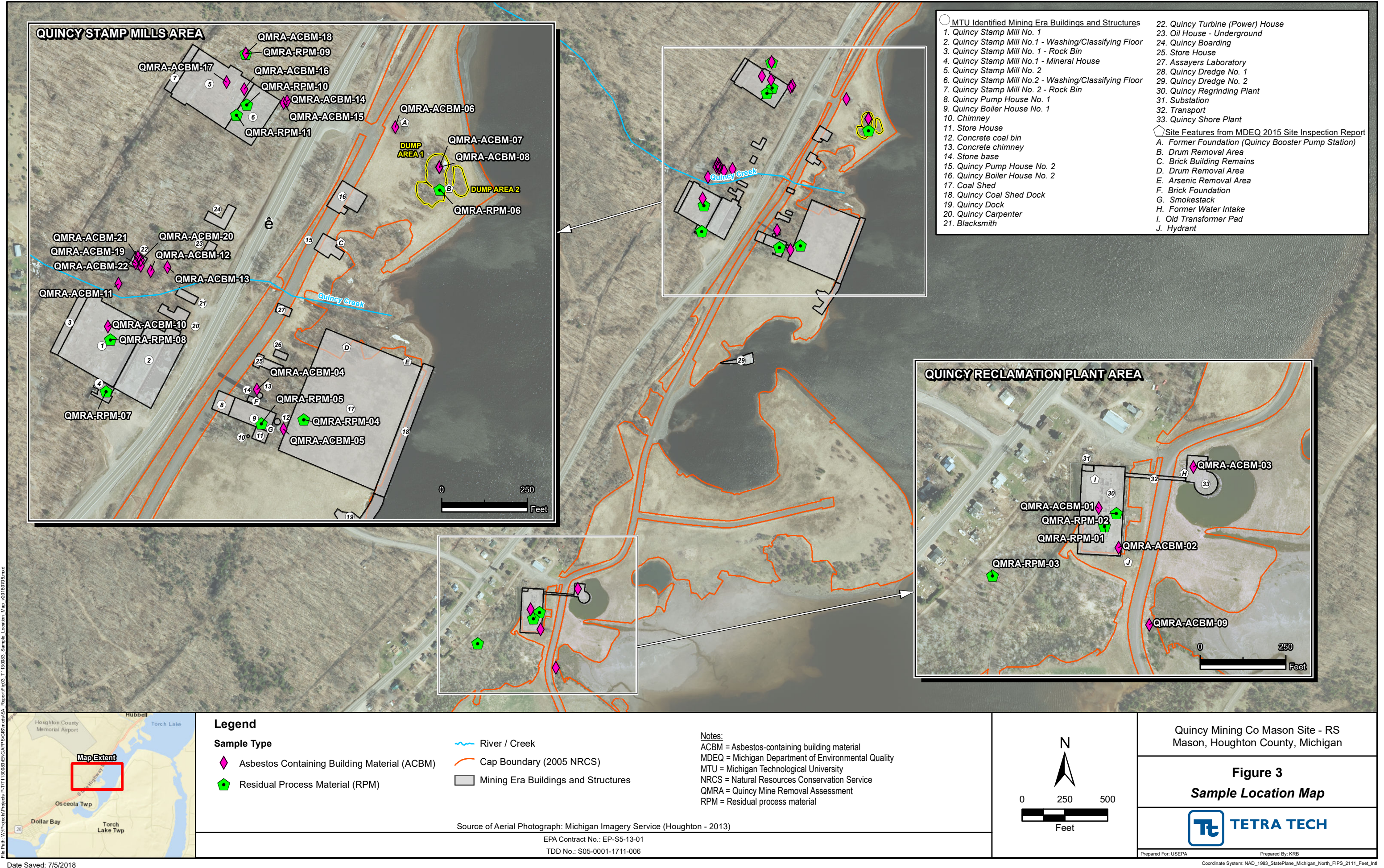
FIGURES

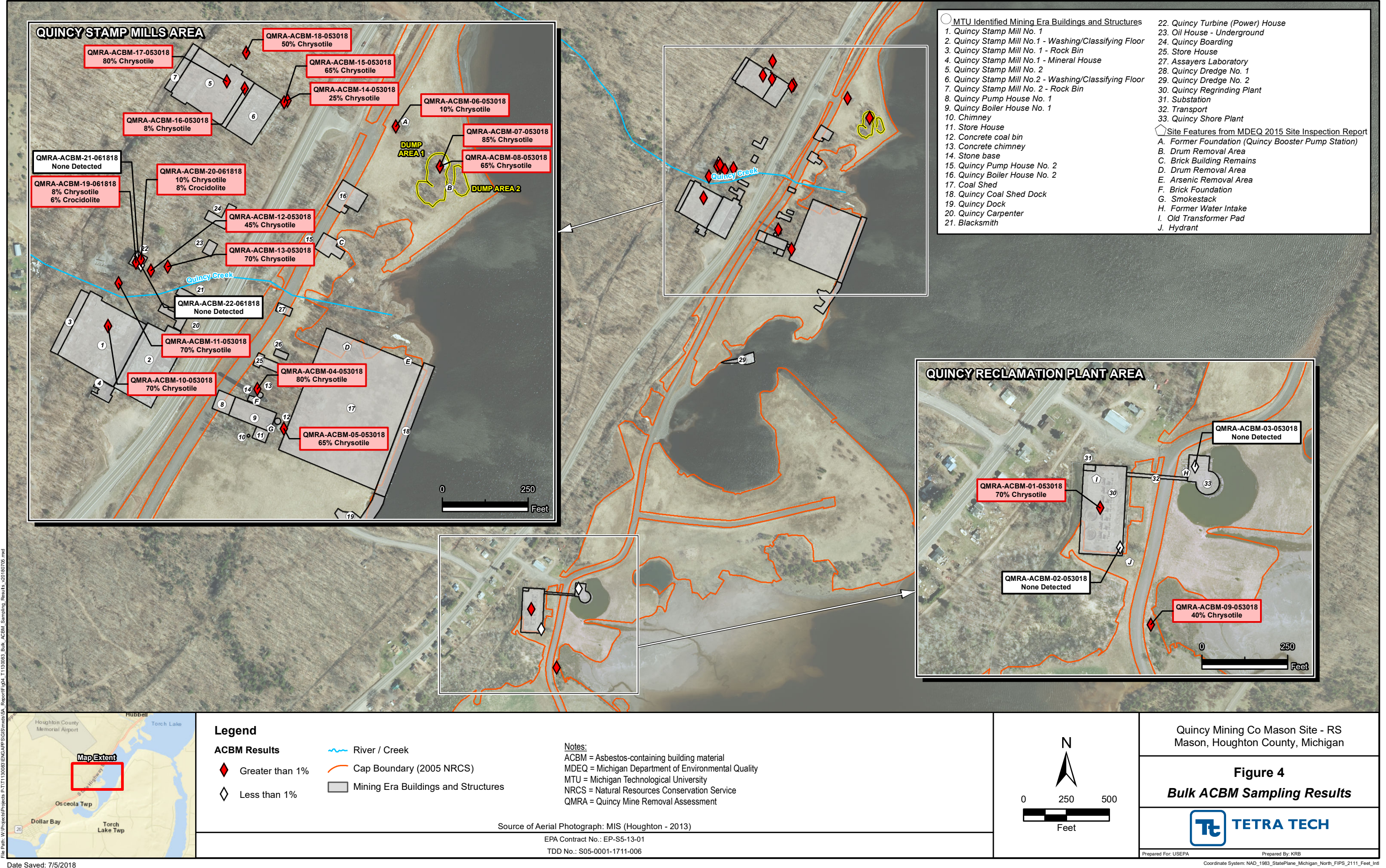
- FIGURE 1 – SITE LOCATION MAP
- FIGURE 2 – SITE LAYOUT MAP
- FIGURE 3 – SAMPLE LOCATION MAP
- FIGURE 4 – BULK ACBM SAMPLING RESULTS
- FIGURE 5 – RPM AND ABANDONED CONTAINER WASTE
SAMPLING RESULTS



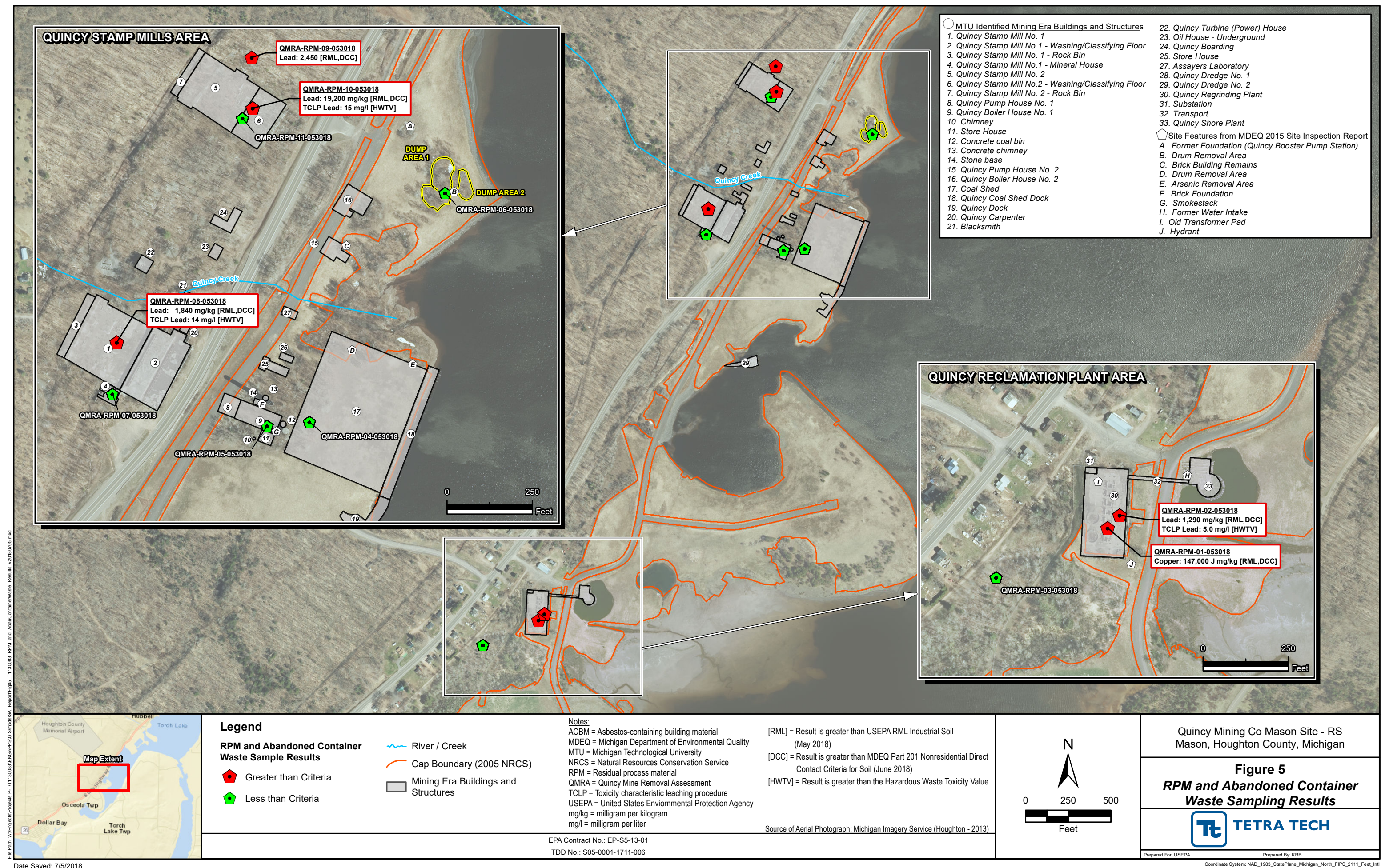
- MTU Identified Mining Era Buildings and Structures
1. Quincy Stamp Mill No. 1
 2. Quincy Stamp Mill No.1 - Washing/Classifying Floor
 3. Quincy Stamp Mill No. 1 - Rock Bin
 4. Quincy Stamp Mill No.1 - Mineral House
 5. Quincy Stamp Mill No. 2
 6. Quincy Stamp Mill No.2 - Washing/Classifying Floor
 7. Quincy Stamp Mill No. 2 - Rock Bin
 8. Quincy Pump House No. 1
 9. Quincy Boiler House No. 1
 10. Chimney
 11. Store House
 12. Concrete coal bin
 13. Concrete chimney
 14. Stone base
 15. Quincy Pump House No. 2
 16. Quincy Boiler House No. 2
 17. Coal Shed
 18. Quincy Coal Shed Dock
 19. Quincy Dock
 20. Quincy Carpenter
 21. Blacksmith
 22. Quincy Turbine (Power) House
 23. Oil House - Underground
 24. Quincy Boarding
 25. Store House
 26. Lumber
 27. Assayers Laboratory
 28. Quincy Dredge No. 1
 29. Quincy Dredge No. 2
 30. Quincy Regrinding Plant
 31. Substation
 32. Transport
 33. Quincy Shore Plant
- △ Site Features from MDEQ 2015 Site Inspection Report
- A. Former Foundation (Quincy Booster Pump Station)
 - B. Drum Removal Area
 - C. Brick Building Remains
 - D. Drum Removal Area
 - E. Arsenic Removal Area
 - F. Brick Foundation
 - G. Smokestack
 - H. Former Water Intake
 - I. Old Transformer Pad
 - J. Hydrant







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APPENDIX B

TABLES

- 1 SUMMARY OF BULK ASBESTOS ANALYTICAL RESULTS
- 2 SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED
CONTAINER WASTE ANALYTICAL RESULTS

TABLE 1
SUMMARY OF BULK ASBESTOS ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID	Sample Date	Asbestos
QMRA-ACBM-01-053018	5/30/2018	70% Chrysotile
QMRA-ACBM-02-053018	5/30/2018	None Detected
QMRA-ACBM-03-053018	5/30/2018	None Detected
QMRA-ACBM-04-053018	5/30/2018	80% Chrysotile
QMRA-ACBM-05-053018	5/30/2018	65% Chrysotile
QMRA-ACBM-06-053018	5/30/2018	10% Chrysotile
QMRA-ACBM-07-053018	5/30/2018	85% Chrysotile
QMRA-ACBM-08-053018	5/30/2018	65% Chrysotile
QMRA-ACBM-09-053018	5/30/2018	40% Chrysotile
QMRA-ACBM-10-053018	5/30/2018	70% Chrysotile
QMRA-ACBM-11-053018	5/30/2018	70% Chrysotile
QMRA-ACBM-12-053018	5/30/2018	45% Chrysotile
QMRA-ACBM-13-053018	5/30/2018	70% Chrysotile
QMRA-ACBM-14-053018	5/30/2018	25% Chrysotile
QMRA-ACBM-15-053018	5/30/2018	65% Chrysotile
QMRA-ACBM-16-053018	5/30/2018	8% Chrysotile
QMRA-ACBM-17-053018	5/30/2018	80% Chrysotile
QMRA-ACBM-18-053018	5/30/2018	50% Chrysotile
Dup-01	5/30/2018	70% Chrysotile
Dup-02	5/30/2018	50% Chrysotile
QMRA-ACBM-19-061818	6/18/2018	8% Chrysotile 6% Crocidolite
QMRA-ACBM-20-061818	6/18/2018	10% Chrysotile 8% Crocidolite
QMRA-ACBM-21-061818	6/18/2018	None Detected
QMRA-ACBM-22-061818	6/18/2018	None Detected

Notes:

ACBM = Asbestos Containing Building Material

QMRA = Quincy Mine Removal Assessment

Results greater than the National Emissions Standard for Hazardous Air Pollutants (NESHAP) and Michigan Department of Environmental Quality (MDEQ) Particulate Soil Inhalation Criteria of 1% are bolded and shaded respectively.

TABLE 2
SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED CONTAINER WASTE ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID	Units	USEPA RML Industrial Soil (May 2018)	MDEQ Part 201 Nonresidential Direct Contact Criteria for Soil (June 2018)	Hazardous Waste Toxicity Value ¹	QMRA-RPM-01-053018	QMRA-RPM-02-053018	QMRA-RPM-03-053018	QMRA-RPM-04-053018	QMRA-RPM-05-053018	QMRA-RPM-06-053018
Sample Date					5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018
ALUMINUM	mg/kg	3,400,000	370,000 (DD)	NA	4,420 J	16,900	2,410	1,040	4,350	6,820
ANTIMONY	mg/kg	1,400	670	NA	0.91 J	2.2 J	<4.3 U	<4 U	<4.7 U	<5.2 U
ARSENIC	mg/kg	300	37	NA	3.8 J	5.4	8.2	2 J	0.98 J+	5.9
BARIUM	mg/kg	650,000	130,000	NA	24.8 J+	332	104	36.7	34.7	125
BERYLLIUM	mg/kg	6,900	1,600	NA	<0.2 UJ	<0.22 U	<0.22 U	<0.2 U	0.17 J	<0.26 U
CADMIUM	mg/kg	2,900	2,100	NA	0.17 J	1	0.2 J	0.1 J	0.22 J	1.6
CALCIUM	mg/kg	NA	NA	NA	6,480 J	21,800	3,740	644	1,780	9,780
CHROMIUM	mg/kg	NA	1,000,000 (D,H)	NA	88.3 J-	47.8	8	2.5	16.7	15.9
COBALT	mg/kg	1,000	9,000	NA	7.2	18.5	6.7	3.2	0.85 J	7.7
COPPER	mg/kg	140,000	73,000	NA	147,000 J	29,400	120	22.6	63	1,370
IRON	mg/kg	250,000	580,000	NA	19,200 J	44,200	20,700	10,600	11,400	18,700
LEAD	mg/kg	800	900 (DD)	NA	78.7 J+	1,290	34.1	2.9	6.3	365
MAGNESIUM	mg/kg	NA	1,000,000 (D)	NA	3,340 J-	12,700	1,090	424	413	4,740
MANGANESE	mg/kg	77,000	90,000	NA	519 J	720	397	58.8	47.6	334
MERCURY	mg/kg	140	580 (Z)	NA	0.36	0.083 J+	<0.088 U	<0.085 U	0.18	0.13
NICKEL	mg/kg	67,000	150,000	NA	31.6 J	54.6	16.4	7.9	11.3	21.4
POTASSIUM	mg/kg	NA	NA	NA	<330 U	221 J	611	204 J	192 J	504
SELENIUM	mg/kg	18,000	9,600	NA	1.7 J	1.6 J	0.45 J+	<2 U	<2.4 U	1 J+
SILVER	mg/kg	18,000	9,000	NA	164 J-	32.4	0.12 J	<0.5 U	<0.59 U	2.9
SODIUM	mg/kg	NA	NA	NA	401 J	679	667	960	622	1,040
THALLIUM	mg/kg	35	130	NA	<2.4 U	<2.6 U	<2.6 U	<2.4 U	<2.8 U	<3.1 U
VANADIUM	mg/kg	17,000	5,500 (DD)	NA	19.5	72.9	10.1	6.1	32.9	27.7
ZINC	mg/kg	1,100,000	630,000	NA	68.4 J-	570	93.4	31.5	29.2	347
CYANIDE	mg/kg	NA	250 (P,R)	NA	<0.58 UJ	0.36 J	0.507 J	<0.6 U	<0.68 U	0.869
1,1-DICHLOROETHENE	mg/l	NA	NA	0.7	--	--	<0.1 U	<0.1 U	<0.1 U	--
1,2-DICHLOROETHANE	mg/l	NA	NA	0.5	--	--	<0.1 U	<0.1 U	<0.1 U	--
1,4-DICHLOROBENZENE	mg/l	NA	NA	7.5	--	--	<0.01 U	<0.01 U	<0.01 U	--
2,4,5-TRICHLOROPHENOL	mg/l	NA	NA	400	--	--	<0.05 U	<0.05 U	<0.05 U	--
2,4,6-TRICHLOROPHENOL	mg/l	NA	NA	2.00	--	--	<0.05 U	<0.05 U	<0.05 U	--
2,4-DINITROTOLUENE	mg/l	NA	NA	0.13	--	--	<0.01 U	<0.01 U	<0.01 U	--
2-BUTANONE	mg/l	NA	NA	NA	--	--	<1 U	<1 U	<1 U	--
2-METHYLPHENOL	mg/l	NA	NA	NA	--	--	<0.05 U	<0.05 U	<0.05 U	--
3 & 4-METHYLPHENOL	mg/l	NA	NA	NA	--	--	<0.09 U	<0.09 U	<0.09 U	--
BENZENE	mg/l	NA	NA	0.5	--	--	<0.1 U	<0.1 U	<0.1 U	--
CARBON TETRACHLORIDE	mg/l	NA	NA	0.5	--	--	<0.1 U	<0.1 U	<0.1 U	--
CHLOROBENZENE	mg/l	NA	NA	100	--	--	<0.1 U	<0.1 U	<0.1 U	--

TABLE 2
SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED CONTAINER WASTE ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID	Units	USEPA RML Industrial Soil (May 2018)	MDEQ Part 201 Nonresidential Direct Contact Criteria for Soil (June 2018)	Hazardous Waste Toxicity Value ¹	QMRA-RPM-01-053018	QMRA-RPM-02-053018	QMRA-RPM-03-053018	QMRA-RPM-04-053018	QMRA-RPM-05-053018	QMRA-RPM-06-053018
Sample Date					5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018
CHLOROFORM	mg/l	NA	NA	6.0	--	--	<0.05 U	<0.05 U	<0.05 U	--
HEXACHLOROBENZENE	mg/l	NA	NA	0.13	--	--	<0.01 U	<0.01 U	<0.01 U	--
HEXACHLOROBUTADIENE	mg/l	NA	NA	0.5	--	--	<0.01 U	<0.01 U	<0.01 U	--
HEXACHLOROETHANE	mg/l	NA	NA	3.0	--	--	<0.01 U	<0.01 U	<0.01 U	--
NITROBENZENE	mg/l	NA	NA	2.0	--	--	<0.01 U	<0.01 U	<0.01 U	--
PENTACHLOROPHENOL	mg/l	NA	NA	100.0	--	--	<0.05 U	<0.05 U	<0.05 U	--
PYRIDINE	mg/l	NA	NA	5.0	--	--	<0.04 U	<0.04 U	<0.04 U	--
TETRACHLOROETHENE	mg/l	NA	NA	0.7	--	--	<0.1 U	<0.1 U	<0.1 U	--
TRICHLOROETHENE	mg/l	NA	NA	0.5	--	--	<0.1 U	<0.1 U	<0.1 U	--
VINYL CHLORIDE	mg/l	NA	NA	0.2	--	--	<0.1 U	<0.1 U	<0.1 U	--
AROCLOR-1016	µg/kg	150,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1221	µg/kg	83,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1232	µg/kg	72,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1242	µg/kg	95,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1248	µg/kg	95,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1254	µg/kg	44,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1260	µg/kg	99,000	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1262	µg/kg	NA	NA	NA	--	--	<30 U	--	--	--
AROCLOR-1268	µg/kg	NA	NA	NA	--	--	<30 U	--	--	--
PCB, TOTAL	µg/kg	94,000	1,000 (J)	NA	--	--	<30 U	--	--	--
TCLP ARSENIC	mg/l	NA	NA	5.0	<0.024 U	<0.024 U	0.0072 J	<0.024 U	<0.024 U	<0.024 U
TCLP BARIUM	mg/l	NA	NA	100	0.15 J+	2	0.37	0.068	0.079	0.42
TCLP CADMIUM	mg/l	NA	NA	1.0	<0.002 U	0.012	<0.002 U	<0.002 U	0.0018 J	0.0043
TCLP CHROMIUM	mg/l	NA	NA	5.0	0.0031	0.0097	0.0033 J	<0.004 U	0.002 J	0.0036 J
TCLP LEAD	mg/l	NA	NA	5.0	0.44 J+	5	0.0029 J	0.076	0.11	0.21
TCLP MERCURY	mg/l	NA	NA	0.2	<0.00012 U	0.00013	0.0001 J	<0.00012 U	<0.00012 U	<0.00012 U
TCLP SELENIUM	mg/l	NA	NA	1.0	0.02 J+	0.032 J+	0.022 J+	<0.013 U	0.017 J+	0.013 J+
TCLP SILVER	mg/l	NA	NA	5.0	<0.004 U	<0.004 U	<0.004 U	<0.004 U	<0.004 U	<0.004 U
pH	s.u.	NA	NA	pH less than or equal to 2, or greater than or equal to 12.5	--	--	6.39	7.01	7.52	--
Flashpoint	°F	NA	NA	flash point less than 140 °F	--	--	140	140	140	--

TABLE 2
SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED CONTAINER WASTE ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID	Units	USEPA RML Industrial Soil (May 2018)	MDEQ Part 201 Nonresidential Direct Contact Criteria for Soil (June 2018)	Hazardous Waste Toxicity Value ¹	QMRA-RPM-01-053018	QMRA-RPM-02-053018	QMRA-RPM-03-053018	QMRA-RPM-04-053018	QMRA-RPM-05-053018	QMRA-RPM-06-053018
Sample Date					5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018

Notes:

-- = Not analyzed

°F = Degrees Fahrenheit

< = Less than

CFR = *Code of Federal Regulations*

DUP = Duplicate

GSI = Groundwater surfacewater interface

J = Estimated value

J+ = The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.

MDEQ = Michigan Department of Environmental Quality

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

QMRA = Quincy Mining Removal Assessment

RPM = Residual process material

RRD = Remediation and Redevelopment Division

s.u. = standard units

TCLP = Toxicity characteristic leaching procedure

U = Analyte not detected at or above the associated value (reporting limit).

USEPA = U.S. Environmental Protection Agency

µg/kg = Micrograms per kilogram

µg/l = Micrograms per liter

¹ Hazardous Waste Toxicity Screening values from Title 40 CFR, Chapter 1, Section 261.20-24

Shaded cell indicates analyte concentration exceeds hazardous waste toxicity value.

Bolded value exceeds Michigan Department of Environmental Quality (MDEQ) Part 201 Nonresidential Direct Contact Criteria for Soil.

Italicized value exceeds USEPA Removal Management Level (RML)

(D) = Calculated criterion exceeds 100 percent; hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(DD) = Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective of a pregnant adult receptor.

(H) = Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 µg/l. If analytical data are provided for total chromium only, these shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can be used only at sites where groundwater is prevented from use as a public water supply, currently and in the future, through an approved land or resource use restriction.

(J) = Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.

(P) = Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria. Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria. Nonresidential direct contact criteria may not be protective of potential for release of hydrogen cyanide gas. Additional land or resource use restrictions may be necessary to protect against acute inhalation concerns associated with hydrogen cyanide gas.

(R) = Hazardous substance may exhibit the characteristic of reactivity as defined in 40 CFR §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules and is available for inspection at MDEQ, 525 West Allegan Street, Lansing, Michigan. Copies of the regulation may be purchased, at cost of \$45 (as of time of adoption of these rules), from the Superintendent of Documents, Government Printing Office, Washington, DC 20401 (stock number 869-044-00155-1), or from MDEQ, RRD, 525 West Allegan Street, Lansing, Michigan 48933, at cost.

(Z) = Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion. Data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out presence of other species of mercury

TABLE 2
SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED CONTAINER WASTE ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID		QMRA-RPM-07-053018	DUP-01	QMRA-RPM-08-053018	QMRA-RPM-09-053018	QMRA-RPM-10-053018	QMRA-RPM-11-053018
Sample Date	Units	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018
ALUMINUM	mg/kg	27,300	25,500	17,200	128	3,130	22,900
ANTIMONY	mg/kg	<5.2 U	<5.3 U	12.6	2.1	11.7	<4.3 U
ARSENIC	mg/kg	<5.2 U	<5.3 U	4.1 J	0.93 J	3.5 J	<4.3 U
BARIUM	mg/kg	52.4	64.1	372	525	880	34.9
BERYLLIUM	mg/kg	<0.26 U	<0.27 U	<0.21 U	<0.087 U	<0.21 U	<0.22 U
CADMIUM	mg/kg	<0.26 U	<0.27 U	1.1	0.7	3.2	<0.22 U
CALCIUM	mg/kg	33,600	34,100	25,600	481	8,160	35,800
CHROMIUM	mg/kg	33.3	33.9	23.7	1	32.5	28.8
COBALT	mg/kg	45.3	41.4	23.5	0.49 J	8	26.2
COPPER	mg/kg	1,510	1,990	48,000	1,560	11,400	15,100
IRON	mg/kg	47,200	54,300	40,800	1,990	18,400	28,200
LEAD	mg/kg	7.1 J	17.2 J	1,840	2,450	19,200	22.5
MAGNESIUM	mg/kg	27,300	25,000	13,800	550	2,360	18,700
MANGANESE	mg/kg	1,300	1,300	876	14.2	654	912
MERCURY	mg/kg	0.16 J	0.049 J	0.55	0.086	18.6	0.95
NICKEL	mg/kg	58	55.9	38.7	2.1	16.4	45.8
POTASSIUM	mg/kg	156 J	145 J	252 J	55 J	245 J	<360 U
SELENIUM	mg/kg	1.7 J	0.74 J	2.3	0.21 J+	1.4 J	2.3
SILVER	mg/kg	<0.65 U	0.53 J	27.8	0.15 J	127	20.6 J
SODIUM	mg/kg	1,210	1,130	846	499	868	895
THALLIUM	mg/kg	<3.1 U	<3.2 U	<2.5 U	<1 U	<2.6 U	<2.6 U
VANADIUM	mg/kg	116	104	78.7	0.85	13.8	79.7
ZINC	mg/kg	186	184	896	871	2,740	111
CYANIDE	mg/kg	<0.77 U	<0.72 U	<0.6 U	<0.6 U	<0.59 U	<0.6 U
1,1-DICHLOROETHENE	mg/l	--	--	--	--	--	--
1,2-DICHLOROETHANE	mg/l	--	--	--	--	--	--
1,4-DICHLOROBENZENE	mg/l	--	--	--	--	<0.01 U	--
2,4,5-TRICHLOROPHENOL	mg/l	--	--	--	--	<0.05 U	--
2,4,6-TRICHLOROPHENOL	mg/l	--	--	--	--	<0.05 U	--
2,4-DINITROTOLUENE	mg/l	--	--	--	--	<0.01 U	--
2-BUTANONE	mg/l	--	--	--	--	--	--
2-METHYLPHENOL	mg/l	--	--	--	--	<0.05 U	--
3 & 4-METHYLPHENOL	mg/l	--	--	--	--	<0.09 U	--
BENZENE	mg/l	--	--	--	--	--	--
CARBON TETRACHLORIDE	mg/l	--	--	--	--	--	--
CHLOROENZENE	mg/l	--	--	--	--	--	--

TABLE 2
SUMMARY OF RESIDUAL PROCESSING MATERIAL AND ABANDONED CONTAINER WASTE ANALYTICAL RESULTS
Quincy Mining Co Mason Site

Sample ID		QMRA-RPM-07-053018	DUP-01	QMRA-RPM-08-053018	QMRA-RPM-09-053018	QMRA-RPM-10-053018	QMRA-RPM-11-053018
Sample Date	Units	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018	5/30/2018
CHLOROFORM	mg/l	--	--	--	--	--	--
HEXACHLOROBENZENE	mg/l	--	--	--	--	<0.01 U	--
HEXACHLOROBUTADIENE	mg/l	--	--	--	--	<0.01 U	--
HEXACHLOROETHANE	mg/l	--	--	--	--	<0.01 U	--
NITROBENZENE	mg/l	--	--	--	--	<0.01 U	--
PENTACHLOROPHENOL	mg/l	--	--	--	--	<0.05 U	--
PYRIDINE	mg/l	--	--	--	--	<0.04 U	--
TETRACHLOROETHENE	mg/l	--	--	--	--	--	--
TRICHLOROETHENE	mg/l	--	--	--	--	--	--
VINYL CHLORIDE	mg/l	--	--	--	--	--	--
AROCLOR-1016	µg/kg	--	--	--	--	--	--
AROCLOR-1221	µg/kg	--	--	--	--	--	--
AROCLOR-1232	µg/kg	--	--	--	--	--	--
AROCLOR-1242	µg/kg	--	--	--	--	--	--
AROCLOR-1248	µg/kg	--	--	--	--	--	--
AROCLOR-1254	µg/kg	--	--	--	--	--	--
AROCLOR-1260	µg/kg	--	--	--	--	--	--
AROCLOR-1262	µg/kg	--	--	--	--	--	--
AROCLOR-1268	µg/kg	--	--	--	--	--	--
PCB, TOTAL	µg/kg	--	--	--	--	--	--
TCLP ARSENIC	mg/l	<0.024 U	<0.024 U	<0.024 U	<0.024 U	<0.024 U	<0.024 U
TCLP BARIUM	mg/l	0.6	0.42	3.4	0.12	3.1	0.23
TCLP CADMIUM	mg/l	<0.002 U	0.00039 J	0.0091	0.0017 J	0.0075	<0.002 U
TCLP CHROMIUM	mg/l	0.004	0.0043	0.018	0.0015 J	0.0027 J	0.0026 J
TCLP LEAD	mg/l	0.012 J	0.0021 J	14	0.98	15	0.27
TCLP MERCURY	mg/l	<0.00012 U	0.000045 J	0.000092 J	0.000062 J	0.000063 J	0.00015
TCLP SELENIUM	mg/l	0.02 J+	0.013 J+	0.033 J+	0.014 J+	0.02 J+	0.023 J+
TCLP SILVER	mg/l	<0.004 U	<0.004 U	<0.004 U	<0.004 U	<0.004 U	<0.004 U
pH	s.u.	--	--	--	--	--	--
Flashpoint	°F	--	--	--	--	--	--

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION LOG



Photographic Documentation

Client: US EPA

Site Name: Quincy Mining Co – Mason Site

Location: Mason, Houghton County, Michigan

Prepared by: Lori Kozel

TDD Number: S05-0001-1711-006

Dates: May 30, 2018

Photograph No. 1

Date: 5/30/18

Description:

Sample QMRA-ACBM-04-053018.

Direction:

Down



Photograph No. 2

Date: 5/30/18

Description:

Sample QMRA-ACBM-09-053018, floor tile scattered.

Direction:

Down





Photographic Documentation

Client: US EPA

Site Name: Quincy Mining Co – Mason Site

Location: Mason, Houghton County, Michigan

Prepared by: Lori Kozel

TDD Number: S05-0001-1711-006

Dates: May 30, 2018

Photograph No. 3

Date: 5/30/18

Description: Sample QMRA-ACBM-10-053018.

Direction:
Down



Photograph No. 4

Date: 5/30/18

Description: : Sample QMRA-ACBM-17-053018.

Direction:
Down





Photographic Documentation

Client: US EPA

Site Name: Quincy Mining Co – Mason Site

Location: Mason, Houghton County, Michigan

Prepared by: Lori Kozel

TDD Number: S05-0001-1711-006

Dates: May 30, 2018

Photograph No. 5

Date: 5/30/18

Description: Various abandoned containers on site.

Direction:
East



Photograph No. 6

Date: 5/30/18

Description: Open access point to site.

Direction:
West





Photographic Documentation

Client: US EPA

Site Name: Quincy Mining Co – Mason Site

Location: Mason, Houghton County, Michigan

Prepared by: Lori Kozel

TDD Number: S05-0001-1711-006

Dates: May 30, 2018

Photograph No. 7

Date: 5/30/18

Description:

Sample QMRA-RPM-02-053018.

Direction:

Down



Photograph No. 8

Date: 5/30/18

Description:

Sample QMRA-RPM-10-053018.

Direction:

Down



APPENDIX D
LOGBOOK SCAN

Quincy Mining



Rite in the Rain®

ALL-WEATHER

FIELD

Nº 351FX

05/30/18 N 65°F, cloudy

0800: START Kozel onsite

Calibrate multi-rat U75-950X

Jed & Ashley (MSG) onsite

0830: Head into site and have

HASP review and tailgate meeting

discuss slips, trips, falls &

bugs. TASKS will include ACM

and RPM sampling and documentation.

0900- Begin Sampling @ Reclamation Plant

0911- QMRA-RPM-01-053018 (RPM-03 MDEQ)

0919- QMRA-RPM-02-053018 (RPM-02 MDEQ)

0932- QMRA-ACBM-01-053018 (ASBLK-09 MDEQ)

0935- QMRA-ACBM-02-053018 (ASBLK-07A MDEQ)

0940- QMRA-ACBM-03-053018 (ASBLK-17A MDEQ)

↳ collected from shore plant

1003- QMRA-RPM-03-053018 - not

previously sampled by MDEQ

abandoned drum open on top &

bottom, inside, brown, granular soil

like.

1020- Move to Stamp Mills area

1030- QMRA-ACBM-04-053018 (ASBLK-23A)

rope like material

1035- QMRA-ACBM-05-053018 (ASBLK-23A)

grey caulk like material

5/30/18 Cont.

1040- QMRA-RPM-04-053018 (DM-02 MDEQ)

VOC/SVOC

1045- QMRA-RPM-05-053018 (BM-03 MDEQ)

white granular material

pH, TCLP VOC, TCLP SVOC

1055- QMRA-ACBM-06-053018 (ASBLK-43A)

white, material, friable

1100- QMRA-ACBM-07-053018 (ASBLK-37A)

Woven tubing

1115- QMRA-ACBM-08-053018 (ASBLK-39A)

Black tubing

1124- QMRA-RPM-06-053018

Soil material below 2 drums,

Will screen XRF & determine

analysis.

1137- QMRA-ACBM-09-053018 (ASBLK-01A)

Floor tile

1200- Move to the other side

of Highway.

1215- XRF Sample RPM-06

Pb - 636 ± 33 , 485 ± 85

642 ± 53 ;

1230- QMRA-RPM-07-053018 (BM-06)

and PUP-01, location inside

large wheel

4 05/30/18 cont...

1245 - QMRA-ACBM-10-053018
(MDEQ ASBLK-60A) + Dup-01

- Screened Soil near ACMB-10

2100 \pm 69 ppm lead, collect

Sample (RPM-08)

1249 - QMRA-RPM-08-053018

no previous sample,

1253 - QMRA-ACBM-11-053018
(BLK-64A)

DEQ amy, OSC Kelly, & Jeff
Binkley (MSG) onsite.

1300 - Outside of powerhouse

QMRA-~~ACBM~~ ACBM-12-053018

new location, appears to be
new material not previously
seen.

1305 - QMRA-ACBM-13-053018
(BLK-070)

1331 - QMRA-ACBM-14-053018
(BLK-084)

1347 - QMRA-ACBM-15-053018

new sample, black/metallic roofing
material.

1352 QMRA-ACBM-16-053018
(BLK-076)

05/30/18

1355 - QMRA-~~ULF~~ ACBM-017-053018
(BLK-074)

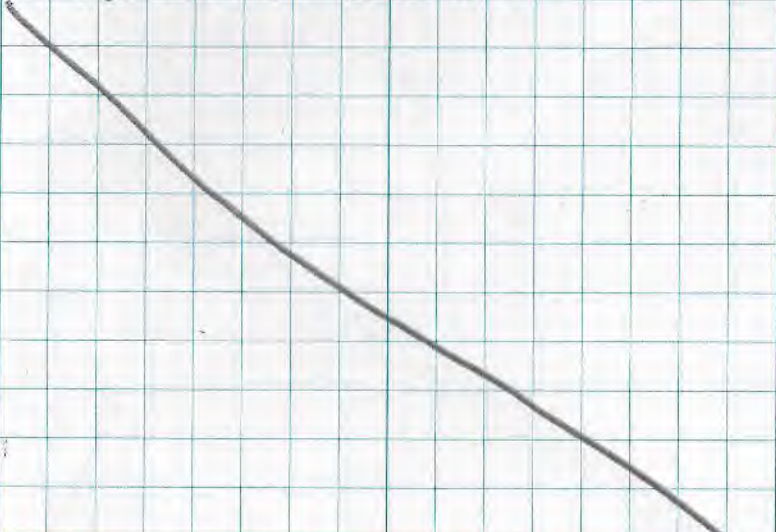
1405 - QMRA-RPM-09-053018
(RPM-04)

1408 - QMRA-ACBM-018-053018
(BLK-83A) felt paper
Dup-02

1415 - QMRA-RPM-10-053018
(RPM-05), orange like material
XRF similar material nearby &
55,000 ppm lead

1422 - QMRA-RPM-11-053018
(RPM-01)

1500 - START off site.



06/18/18

- START Christensen & START
Miller mobilized to site to
collect 4 additional samples
in the turbine building.

1219 QMRA-ACBM-19-06/18/18

1221 QMRA-ACBM-20-06/18/18

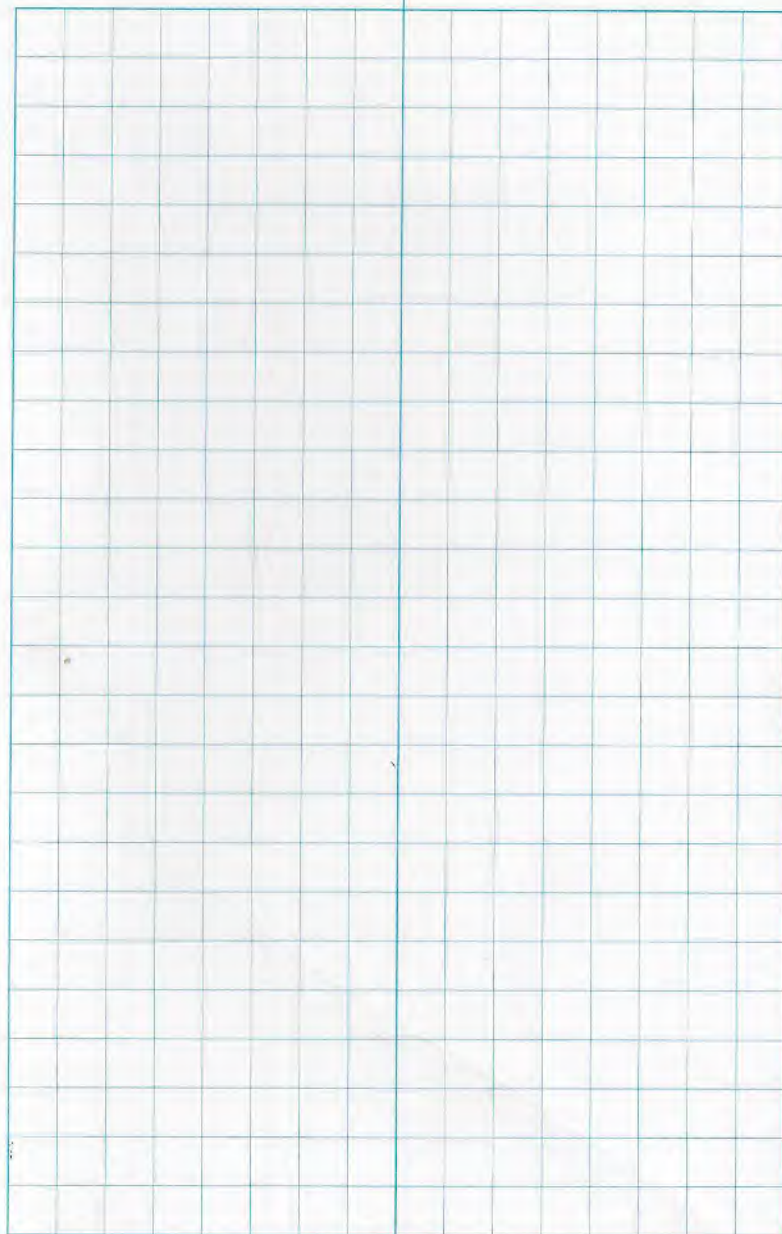
1222 QMRA-ACBM-21-06/18/18

1224 QMRA-ACBM-22-06/18/18

- note GPS points not collected
due to building interference.

NOTE: START Kozel transferred
these notes from START Miller.

Led Kozel



APPENDIX E
CHAIN OF CUSTODY RECORDS

Company: Tetra TechProject Contact: Lori KozelTelephone: 506-524-0613Project Name: Quincy Mining - MasonProject #: 103X902000015051711006Location: Mason, MISampled By: Lori Kozel

CT LABORATORIES

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.comReport To: Lori Kozel
EMAIL: lori.kozel@tetra-tech.com
Company: Tetra TechAddress: 25213 Dequindre
Madison Heights, MI 48071Invoice To: *
EMAIL:
Company: SAME AS ABOVE
Address:

Program:

M RCRA SDWA NPDES

Solid Waste Other

#

1144695

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

NONE.

ANALYSES REQUESTED

Turnaround Time

Normal RUSH*

Date Needed: _____

Rush analysis requires prior
CT Laboratories' approval

Surcharges:

24 hr 200%

2-3 days 100%

4-9 days 50%

Matrix:

GW - groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Filtered? Y/N

TCLP Metals

Total Metals

TAP VOC

TCLP SVOC

PCB

PH

Ignitability

Total # Containers

Designated MS/MSD

CT Lab ID

Lab use only

Collection		Matrix	Grab/Comp	Sample #	Sample ID Description	Filtered? Y/N	Fill in Spaces with Bottles per Test															Total # Containers	Designated MS/MSD	CT Lab ID # Lab use only
Date	Time						TCLP Metals	Total Metals	TAP VOC	TCLP SVOC	PCB	PH	Ignitability											
5/30/18	0911	S	grab		QMRA-RPM-01-053018		X	X														2		128929/128930
5/30/18	0919	S	grab		QMRA-RPM-02-053018		X	X														2		128931/128932
5/30/18	1003	S	grab		QMRA-RPM-03-053018		X	X	X	X	X	X	X									2		128933/128934
5/30/18	1040	S	grab		QMRA-RPM-04-053018		X	X	X	X		X	X									2		128935/128936
5/30/18	1045	S	grab		QMRA-RPM-05-053018		X	X	X	X		X	X									2		128937/128938
5/30/18	1230	S	grab		QMRA-RPM-06-053018		X	X														2		128939/128940
5/30/18	-	S	grab		DUP-01		X	X														2		128941/128942
5/30/18	1215	S	grab		QMRA-RPM-06-053018		X	X														2		128943/128944
5/30/18	1249	S	grab		QMRA-RPM-08-053018		X	X														2		128945/128946
5/30/18	1405	S	Grab		QMRA-RPM-09-053018		X	X														2		128947/128948
5/30/18	1415	S	grab		QMRA-RPM-10-053018		X	X		X												2		128949/128950
5/30/18	1422	S	grab		QMRA-RPM-11-053018		X	X														2		128951/128952

Relinquished By:

Date/Time

5/31/18 1200

Received By:

FED-EX

Date/Time

5/31/18

Lab Use Only

Ice Present Yes NoTemp 1.6 IR Gun 24Cooler # 5704

Received by:

Date/Time

6-2-18 1009

Received for Laboratory by:

Date/Time

6-2-18 1042

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

081801262

PHONE
FAX:

Company Name: <u>Tetra Tech</u>		EMSL Customer ID:	
Street: <u>25213 Degundre Rd</u>		City: <u>Madison Heights</u>	State/Province: <u>MI</u>
Zip/Postal Code: <u>48044</u>	Country:	Telephone #: <u>586-524 0613</u>	Fax #: <u>—</u>
Report To (Name): <u>Lori Kozel</u>		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: <u>lori.kozel@tetra-tech.com</u>		Purchase Order:	
Project Name/Number: <u>Quincy Mining Mason Site</u>		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: <u>MI</u>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different - If Bill to is Different note instructions in Comments** Third Party Billing requires written authorization from third party			
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input checked="" type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week			
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NYS 198.8 SOF-V <input type="checkbox"/> NIOSH 9002 (<1%)		TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	
TEM - Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<1%) <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%) <input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%) <input type="checkbox"/> TEM Qualitative via Filtration Prep <input type="checkbox"/> TEM Qualitative via Drop Mount Prep <input type="checkbox"/> Cincinnati Method EPA 600/R-04/004 - PLM/TEM (BC only) Other: <input type="checkbox"/>			
<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Filter Pore Size (Air Samples): <input type="checkbox"/> 0.8µm <input type="checkbox"/> 0.45µm	
Samplers Name: <u>Lori Kozel</u>		Samplers Signature: <u>[Signature]</u>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
QMRA-ACBM-01-053018	Brown TSI	Bulk	5/30/18 0932
QMRA-ACBM-02-053018	silver felt paper		0935
QMRA-ACBM-03-053018	White TSI		0940
QMRA-ACBM-04-053018	rope gasket		1030
QMRA-ACBM-05-053018	gray mastic		1035
Client Sample # (s): <u>—</u>		Total # of Samples: <u>20</u>	
Relinquished (Client): <u>[Signature]</u>		Date: <u>5/30/2018</u>	Time: <u>1200</u>
Received (Lab): <u>FE</u>		Date: <u>6/4/19</u>	Time: <u>8:55</u>
Comments/Special Instructions:			



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

081801262

PHONE:

FAX.

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

[illegible]

***Comments/Special Instructions:**

5 FE 6/4/18 8:55

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

081801429

PHONE:
FAX:

Company Name: TETRA TECH		EMSL Customer ID:	
Street: 25213 DEQUINDRE RD.		City: MADISON HEIGHTS	State/Province: MICHIGAN
Zip/Postal Code: 48071	Country: USA	Telephone #: 586524-0613	Fax #:
Report To (Name): LORI KOZEL		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email	
Email Address: LORI.KOZEL@TETRA TECH.COM		Purchase Order:	
Project Name/Number: QMCN - STREET		EMSL Project ID (Internal Use Only):	
U.S. State Samples Taken: MICHIGAN		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different - If Bill to is Different note instructions in Comments**			
Third Party Billing requires written authorization from third party			
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input checked="" type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week			
*For TEM Air 3 hr through 6 hr, please call ahead to schedule *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.			
PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NYS 198.8 SOF-V <input type="checkbox"/> NIOSH 9002 (<1%)		TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking	
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<input type="checkbox"/> Check For Positive Stop - Clearly Identify Homogenous Group		Filter Pore Size (Air Samples): <input type="checkbox"/> 0.8µm <input type="checkbox"/> 0.45µm	
Samplers Name: ASHLEY E MILLER		Samplers Signature: <i>[Signature]</i>	
Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
QMCN-ACBM-19-061818	WHITE CHALK-LIKE SUBSTANCE		06/18/2018 12:19
QMCN-ACBM-20-061818	WHITE FIBROUS ISI MATERIAL		06/18/2018 12:21
QMCN-ACBM-21-061818	BLACK COATED TAPE PAPER ROOFING		06/18/2018 12:22
QMCN-ACBM-22-061818	GRAY FABRIC w/ RUBBER BACKING		06/18/2018 12:26
Client Sample # (s): QMCN-ACBM-19-061818 - QMCN-ACBM-22-061818		Total # of Samples: 4	
Relinquished (Client): <i>[Signature]</i>		Date: 06/19/18	Time: 1030AM
Received (Lab): MS		Date: 6/21/18	Time: 10:00
Comments/Special Instructions:			